

# Toxic Substances Fact Sheet

**COMMON NAME: Arsenic and arsenic compounds** CAS Number: 7440-38-2

NOTE: Most arsenic in the environment occurs in compounds, rather than as the metallic element. In general, organic arsenic-containing compounds are less toxic than inorganic ones.

## Hazard Summary

- Arsenic and arsenic compounds can affect you when breathed in, absorbed through the skin, and when swallowed.
- Exposure to arsenic dust and fumes has been linked to lung cancer in smelter and pesticide plant workers.
- Inorganic arsenic compounds are acutely toxic.

## USES:

Arsenic metal is used in alloys, in glass, as a radioactive tracer.  
Compounds are used in pesticides and wood preservatives.

## PHYSICAL CHARACTERISTICS:

Arsenic: grey metal. Compounds: variable color, usually crystals.

No odor reported for metal or most compounds. Arsenic trioxide has a garlic-like odor.

Solubility in water: Arsenic, Insoluble; compounds, range from soluble to insoluble.

Does not bioaccumulate.

## FEDERAL DRINKING WATER MAXIMUM CONTAMINANT LEVEL:

0.050 ppm (parts per million).

## OSHA AIR STANDARD:

0.01 mg arsenic/m<sup>3</sup>.

## NIOSH AIR RECOMMENDATION:

0.002 mg arsenic/m<sup>3</sup>.

### **HEALTH EFFECTS:**

As with all chemicals, the type and severity of health effects associated with exposure to arsenic and related compounds depend on the level, duration, and route of exposure. The age, sex, weight, preexisting health condition, and overall susceptibility of the individual also determine the health effects he or she may experience. Individuals show a wide range of variability in their tolerance of chemical exposure.

Arsenic may be an essential trace nutrient in some animals, and may be one in humans.

### **SHORT-TERM HEALTH EFFECTS:**

The following acute (short-term) health effects may occur immediately or shortly after exposure to arsenic and its compounds:

**INHALATION:** Dusts and mists can cause coughing, chest pains, difficult breathing, giddiness, headache, nausea, vomiting, diarrhea, and breakdown of nasal tissues.

**SKIN:** Can cause irritating redness and blisters. Arsenic trioxide can be absorbed through the skin, and can induce above symptoms.

**EYES:** May cause irritation.

**INGESTION:** May cause stomach pains, vomiting (possibly with blood), diarrhea (possibly with blood), inflammation of the throat, cramps in the legs, restlessness, paralysis, shock, and death.

### **LONG-TERM HEALTH EFFECTS:**

The following chronic (long-term) health effects can occur some time after exposure to arsenic and can last for months or years.

#### **CANCER HAZARD:**

Occupational exposure to arsenic dust by inhalation has been associated with lung cancer in arsenic smelter workers. Arsenic ingestion has been linked to skin, liver, bladder, and lung cancer. Many scientists believe there is no safe level of exposure to any cancer-causing agent.

#### OTHER LONG-TERM EFFECTS:

Prolonged arsenic exposure can cause weakness, loss of appetite, nausea, vomiting, diarrhea, stomach pain, irritation and inflammation of the eyes, nose, and throat, destruction of nasal tissues, excess itching, thickening and discoloration of the skin, especially on the hands and feet, and paralysis of the hands and feet.

#### REPRODUCTIVE HAZARDS:

Sodium arsenate has been shown to cause birth defects in animals. It and other arsenic compounds should be considered to have the potential to do so in humans.

#### MEDICAL TESTING:

To document exposure to high levels of arsenic, the following test is available:

Urinary arsenic levels.

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This fact sheet summarizes information about this chemical, and is not a comprehensive listing of potential effects. For more information, please refer to applicable guidelines and scientific literature. Consult your physician for specific medical advice.

Prepared by the Environmental Epidemiology Division, Michigan Department of Community Health, 3423 N. Martin Luther King Jr. Blvd., P.O. Box 30195, Lansing, MI 48909. Based on the Toxicological Profile for Arsenic prepared by the Agency for Toxic Substances and Disease Registry, an occupational health fact sheet prepared by the New York Department of Health, and a fact sheet format used by the Wisconsin Department of Health and Social Services.